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Using Praat Software In Teaching Prosodic Features To EFL Learners

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Abstract

The study aimed at exploring the effectiveness of computer software (Praat) in helping students to acquire prosodic features of English language. Forty participants including male and female university students, ranging the age from 18 to 35 years old, were assigned into two experimental control groups. Then both groups were given a pre - test before the research sessions. The control group received (Non-CALL approach) while the experimental group was through CALL approach to pirate software. Finally, both groups sat for post-test at the end of treatment. A *t*-test analysis was used and findings revealed that the difference between two groups was significant in terms of learning prosodic features through Praat software ($p<.05$). The results also showed that learners that practiced stress and intonation through CALL approach were more successful than the students who were taught through traditional method.

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Key words: Praat software, prosodic features, EFL, pronunciation, stress, intonation

1. Introduction

The purpose of this study is to examine the relationship between two different methods of teaching these features. It has been used for years but no one tries to change it and use a better way of teaching (Blake, 2000). This better way can be the use of software to teach and practice prosody of the target language. Thus the purpose of the current study is to find out to what extent each method is effective and useful for our students to develop their pronunciation abilities.

Therefore, we can see the importance of prosody to the naturalness and intelligibility of speech. Regarding the importance of these features teachers and programmers have tried to use computer softwares to teach to language learners. One of these softwares is called Praat, introduce by Wilson (2005). Which can be used to teach aspects of prosody such as stress and intonation. It provides an immediate feedback in language class. This software provides

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an opportunity to analyze and visualize the specification of producing speech by the learner. Student's speech can be recorded and then replayed to check the features. This analysis and direct observation facilitate teaching prosody and help learners to acquire them in real environments. It is widely used in language classes and well known for teachers (Yoon, 2007). It can be easily installed on multiple platforms and all scripts and files can be made fully portable from one system to another.

Referring to the mentioned information about CALL and prosodic features, this study examines and compares two different ways of teaching (i.e., using repetition, explaining phonetic symbols, etc) to EFL learners (Levy, 2004). One way is the existing traditional way which is common in our country and another is the modern way with the help of computer software (Praat). The priority and effectiveness of each way will be examined in this study.

Using technology in teaching pronunciation can be useful and effective in language classrooms. Therefore, regarding the great advantages of CALL to have an unlimited capacity and immediate feedback, language learning would be simpler and feasible for educators. This modern way of teaching seems more effective and interesting compared to the traditional way which is common in our country. Traditional classes are generally teacher-centered and students have no role except sitting and listening to the teacher's explanations and examples, doing exercises of the book and memorizing some points to pass the exam. This is the reality of pronunciation classes in our country; however, computer software has designed to help the teacher and learners to facilitate the process of learning and teaching stress and intonation. The present study focuses on two important features: stress and intonation and examines the best way of teaching them through CALL approaches. Therefore, the following research questions could be formulated as follows: (1) To what extent does Praat software affect teaching stress and intonation among Iranian EFL learners; and (2) Is there any significant difference between the learners using CALL and Non-CALL approaches learn stress and intonation through Praat software?

2. Review of literature

2.1. Theoretical background

CALL origins and development trace back to the 1980's (Hinks, 2003; 2005) since the early CALL has developed into the symbiotic relationship between the development of technology and pedagogy. The philosophy of CALL puts a strange emphasis on student-centered lessons that allow the learners to learn their own using structured and/or unstructured interactive lesson. These lessons carry two important features bidirectional learning and individualized learning. In linguistics, prosody is the rhythm, stress and intonation of speech prosody generally refers to the organization of spoken utterances, however, the term has been defined in many ways in the literature. The various definitions of prosody can be classified into three categories (Hubbard & Levy, 2007). One class defines prosody as the collection of its acoustic correlates like, frequency of duration, amplitude and segment quality or reduction. A second class is based on the role of prosody as the phonological organization of segments into higher-level constituents, such as utterances, into national phrases, prosodic words, metrical feet syllables, etc.

A third class of definition combines the phonetic and phonological aspects of prosody, including both the higher-level organization, and the phonetic manifestation of this organization in the pattern of frequency, duration, etc., within the utterance. We believe that this class of definition is most appropriate for investigation of prosodic theory. Prosody can reflect various features of the speaker's utterance. It is important to the analysis and interpretation of spoken utterances. For example , the pitch accents can be detected to locate the focus of an utterance and assist semantic/pragmatic interpretation, the general shape of the pitch contour of an utterance (e.g., rising, falling) can be analyzed to determine the sentence mood, e.g., question, statement, etc (Healey, 2003). Prosodic cues can also reflect the structure of a message and play an important role in distinguishing dialogue acts

of speech (Aist, 1999). Even the mood of the speaker can be detected by prosodic features of speech and find the emotional state of the speaker.

Many studies have been done to discover the relationship between the personality and emotional state of speaker in changing prosody. So we see that these features of language are so important. In the area of teaching second/foreign language this importance is more noticeable, because learning and acquiring the prosody of the target language can affect the native speaker's judgment. Of all prosodic features of English, this study focuses on the stress and intonation that are important to interpret the meaning of an utterance.

2. 1.1. Stress

A stressed syllable can be defined as one which is more prominent that the surrounding ones and stands out among them. This prominence is usually achieved through a relative increase in loudness. A syllable that is stressed may also be somewhat longer in duration than an unstressed syllable and be produced at a higher than normal pitch. Stress also determines, to some extent, the value of vowels in a word-whether an /a/, for instance, is to be pronounced as /e/, /ə/, or /æ/.

The position of stress in words of two or more syllables in English is not predictable. In other words, it is notoriously difficult to predict the stressed syllable in a two or polysyllabic word in English. Therefore, many times students have to turn to an English dictionary to learn which syllable of a word should be stressed. However, there are some of their difficulties in learning English stress. Some of these Patterns which enjoy high frequency are accounted for below. However, before turning to stress patterns it must be noted that there are four levels of stress in English: Primary _ˊ, secondary _ˋ, tertiary _, and weak_ . That is, polysyllabic words normally have more than one stressed syllable, one of which is usually more prominent than one stressed syllable, one of which is usually more prominent than the others, For example, in 'economical, /ÌkənámÌkə1/ the third syllable has primary stress, the first has secondary, and the rest of the syllables are weak.

2. 2. Intonation

More specifically, it is the combination of musical tones on which we pronounce the syllables that make up our speech. It is closely related to sentence stress. Often, but not always, a syllable with sentence stress is spoken on a higher note than the unstressed syllable. In such cases, intonation is one of the elements of stress, the others being loudness and length. We can mark the intonation of sentences by writing them on something resembling a musical stuff. Intonation is the rise and fall of voice on certain words in a sentence. Tones of voice can be divided into four types: normal, high, extra-high, and low. We can then show the movements of voice up and down by drawing lines at four different levels over or under a sentence. A line drawn at the base of the letters of a word indicates that the word is pronounced in a normal tone, a line above the word an extra high tone, but this tone is seldom used except when some emotional emphasis is required, such as fear or surprise.

2. 3. Experimental Background

Depending on the program, the computer can contribute to the learning of many aspects of language and culture to the learners of different levels (Hayati, 2005). Regarding the importance of having a good pronunciation and accent for language learners, researchers and teachers have started to use this technology to teach phonology of the target language to their students. There has been a movement toward using computer technology in order to teach oral skills and help students to control their proficiency and pronunciation (Anderson-Hsieh, 1992; 1994; 1994). So, many efforts have been made to examine the effectiveness and the amount of feedback of computer in teaching pronunciation and oral skills of the target language. Researchers have begun to move from a focus on segments or individual phonemes to the suprasegmental or prosody like stress, intonation and pause. These factors influence a native speaker's judgement of second or foreign language learners' accent (Bax, 2003).

The program was evaluated in this paper according to Chapelle (2001) six criteria for CALL assessment. Since objective human ratings of pronunciation are costly and can be unreliable, our students were pre-and post- test with the automatic phone pass SET test from ordinate corp. Results indicated that practice with the program was beneficial to those students who began the course with a strong foreign accent but was of limited value for students who began the course with better pronunciation.

Wilson's (2005) study refers to the advantages of Praat to teach segmental and supra-segmental pronunciation such as vowels and diphthongs. He says some features like vowel length differences before voiced and voiceless stop or voice onset time or intonation and stress can be shown and measure by this software. After being trained by the teacher on the use of Praat, students are able to record and analyze their own pronunciation. Students first record speech by selecting Record mono sound (or stereo) from the menu of Praat objects window. After recording and saving it to the Praat objects window (by clicking on save to list in the sound Recorder window that pops up), the acoustic signal maybe observed by clicking on the Edit button (visible when an object exists in the Praat objects window). The experiment in this study was done by the help of 14 students. After asking them to record one sentence, he had them measure the duration of vowels and the prosodic features and then comparing it with one sample from a native speaker of English. For example regarding schwa sound he found that the majority- of students have a schwa of duration 81-100 ms, far too long. This study tried to prove the potential feedback and effectiveness of using this program to teach aspects of pronunciation like stress, pause, intonation and comprehensibility.

3. Methodology

3.1 Subjects

The subjects of this study were 40 Iranian EFL learners at intermediate proficiency level majoring in teaching English as a foreign language (TEFL) at BA level. The research sample was based on a 40-item paper-based proficiency test of Barron's (Sharpe, 2007), through which 80 learners were given the proficiency test and the learners whose scores fell one standard deviation below and above the mean were selected as the subjects of the study and divided into two groups of experimental and control.

3. 2 Materials

A proficiency test based on TOEFL was administered to the participants in both groups to determine how well they were uniform in terms of language proficiency before the instruction had begun. Besides, a pre-test and post-test regarding stress and intonation were given to the two groups of control and experimental. As a matter of fact the pre-test (r=0.537) was administered in order to estimate how much they know about the issue furthermore, a post-test (r=0.574) was administered in order to see to what extent did Praat software affect teaching stress and intonation among Iranian EFL learners. The scores of two exams were calculated to be out of 20 (Appendix B). the reliability coefficient of the proficiency-test in this research was calculated by Kudar-Richarson formula (KR-21). The reliability coefficient for the proficiency-test was 0.76. Moreover, as the research apparatus, Praat software was utilized for the experimental group. It should be mentioned that during the course of instruction the students were taught how to work with this software.

3.3 Procedure

After the administration of the pre-test, the learners' scores were computed ranging from 15 to 40 and the mean score was computed to be 25. The students whose scores were one standard deviation above the mean were selected as the intermediate learners and participants of the study. The participants were randomly divided into two control and experimental groups. Each group was given an exam about stress and intonation to determine their knowledge of the issue before the research. Then, they were taught for 10 sessions. Control group was taught stress and intonation in traditional way with the help of phonology books like Keshavarz and Yarmohamadi (1997); on the other hand, the experimental group had a review of patterns of stress and intonation and then practiced the issue through Praat software in a computerized environment. During each session, the teacher had initially a discussion about the rule and then started to work with computer. Finally, both groups were assessed on a post-test based on

what they had learned. Data were analyzed through Independent Samples *t*-test to examine the means of both experimental and control groups.

4. Results

4. 1. Descriptive Statistics

Descriptive statistics including of experimental and control groups were respectively computed as it is indicated in Table 1.

Table 1. Descriptive statistics of the two groups

Tests	Treat	N	Mean	Std. Deviation	Std. Error Mean	df	t	Sig. (2-tailed)
Pre-test	Control	20	12.7500	2.95359	.66044	38	-.571	.608
	Experimental	20	13.2500	3.16020	.70664			
Post-test	Control	20	14.9500	2.11449	.47281	38	-3.574	.000
	Experimental	20	17.4500	1.98614	.44411			

Results showed that the experimental groups outperformed the control groups as the variance of the control group on the post-test is 4.471 and that of the experimental group is 3.945.

4.2 Results of Independent Samples T-test Analysis

Since descriptive statistics could not offer the researcher valid information to reject or sustain the null hypothesis, an Independent Samples T-test was run to see whether the observed difference between the groups was significant or not in Table1. Table 2 revealed that there was a significant difference between the scores of students the mean of score in the experimental group was higher than control group as *t*-observed calculated as *t*=3. 854 at the (df=38), Therefore, it is possible to argue that there is a significant difference between traditional teaching and modern teaching and modern teaching.

5. Discussion

Putting aside the pre-test which was administered at the beginning of instruction for the purpose of indicating their proficiency levels, the post-test was administered to check the participants' information after they finished the instruction. Therefore, the first proposed null hypothesis concerned with the difference between pre-test and post-test was rejected at the signification level of ($p<0.05$) with the df=38 so the members of experimental group who learned and practiced prosodic features with computer (Praat) were more successful.

There is a significant difference between the performances of control group and Experimental group. Teaching prosodic features (stress and intonation) in computerized environment and allow them to practice what they have learned with computer, can help them to acquire these features well. Consequently it affects their pronunciation and accent. The null hypothesis of this study was that computer software (Praat) does not affect learning prosodic features of English.

The results of this study are in line with the outcomes of some of the studies having been done in the domain of teaching prosodic features through the CALL system. Hardison (2003; 2004), for instance, emphasized the importance of using CALL on teaching prosodic features in his study and finally came to the point that computerized learning of these features was more effective and in comparison to the students in the control group, students who learned these patterns in the experimental group were more successful in communication and interaction with native speakers of English.

Teaching prosody in a real and computerized environment is more useful for learners, such class is student-centered and students have more opportunities to practice these features which may, in turn, promote optimal performance. The outcomes of this research are supported by Hayati (2009) who focused on the role of CALL in learning L2.

The outcomes of this study are in conformity with this point, it was proven that compared to students in traditional classes, students in computerized environment appeared to be more active, less anxious, and enjoy learning. During this study students were asked to install Praat on their computers at home, practicing prosody outside the class. They started to work with software to be aware of the functions of prosodic features in utterances. They were asked to record their speech and compare it with a native like speech through Praat and find the differences between them. Students had cooperated with each other in class so learning was enjoyable and interesting for them unlike traditional approaches that they had to sit in class, listen to the teacher and then memorize some rules for the final exam.

6. Conclusion

As pronunciation is considered to be as a subcategory of speaking skill, CALL approaches can be used to teach speaking to our learners in an effective way. There are many kinds of games and programs that have been designed to help learners for learning. Praat software was selected to teach in this study, there are other programs in this field. Researchers and teachers can search on the Internet, find them, and test their efficiency in classes. There are many studies in the field of teaching that can be done by Praat for instance, some research should do to check the role of emotions in changing intonation patterns of speech, or even realizing the kind of personality by changing prosodic features via computer software.

The results of this study provide empirical evidence supporting other researcher's claims (Hardison, 2004; Pennington, 1999, 2002) that computer technology can help second language learners more accurately perceive and produce prosodic features. However, it suggests that further work is needed to explore the effects that CALL approaches can have on the language learners' perception and production of specific supra- segmental features.

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